INVENTION vs. MECHANICAL SKILL

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Invention vs. Mechanical Skill.

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In most Divisions of the Office there are classes of inventions long established; inventions in devices that generically have been in use almost from the time when the memory of man runneth not to the contrary. In no division probably is this more true, than in Division 8. Furniture is as old as habitations and habitations nearly as old as man.

It follows that the classes of beds, chairs, and furniture proper must be well developed and that inventions therein must be directed to improvements; that the advance in the art made by each invention will probably be small and that in each case, a search will disclose a fairly close approximation of the device as a whole and suggestions of the details of the improvement.

Under these circumstances, the question whether the applicant has produced something requiring the exercise of the inventive faculty or not, is continually before the Examiner for settlement and by virtue of its ubiquity overshadows all other questions in importance.

With a view of deducing, if possible, from the mass of decisions on the subject, some principles which may serve as buoys and beacons to mark the navigable channel of invention from the flats and shallows of mechanical skill, some study of the subject has been made and the results thereof are here set down.

It is an accepted rule that invention must be involved in the production of an Art, Machine, Manufacture, or Composition of Matter before the same can be held patentable. The statute, Section 4886, says—

> "any person who has invented or discovered any new and useful art, etc., may obtain a patent therefor."

All the recent writers of textbooks on the subject from Robinson to Rogers, agree on this rule. Robinson, for instance, says in Book I, paragraphs 77 and 78:

> "The inventive act in reality consists of two acts; one mental, the conception of an idea; the other manual, the reduction of that idea to practice. . . . The mental faculties employed in the inventive act are the *creative*, not the *imitative* faculties. An invention is the product of original thought. It involves the spontaneous conception of some idea not previously present to the mind of the inventor. Industry in exploring the discoveries and acquiring the ideas of others, wise judgment in selecting and combining them, mechanical skill in applying them to practical results; none of these are creation; none of these enter into the inventive act."

The rule is so well set forth in the decision of Mr. Commissioner Hall, in Ex parte Devin, C. D., 1888, page 166, that I can not refrain from quoting. He said:

> "It is not sufficient that an applicant shall have made a new and useful article or machine; but he must have made an *invention* or *discovery*. These terms have received a clear and well-defined construction at law, and in the decisions of the courts, the word *discovered* having practically the same meaning as the word *invented*."

In deciding adversely the case before him, he went on to say:

> "It is well known that the mechanics, artisans, and laborers of the world are continually making an infinite multitude of new and useful contrivances, changes, and modifications in the affairs of life, and yet they do not dream of patenting them, for the reason that they are not the result of the exercise of the inventive faculty, but simply of the mechanical faculty."

A leading decision by the United States Supreme Court, setting forth the Rule requiring invention, is The

Atlantic Works *vs.* Brady, printed in C. D., 1883, page 214, which says:

> "The process of development in manufactures creates a constant demand for new appliances, which the skill of ordinary head workmen and engineers is generally adequate to devise, and which, indeed, are the natural and proper outgrowth of such development. . . . To grant to a single party a monopoly of every slight advance made, except where the exercise of invention somewhat above ordinary mechanical or engineering skill is distinctly shown, is unjust in principle and injurious in its consequences. The design of the patent laws is to reward those who make some substantial discovery or invention which adds to our knowledge and marks a step in advance in the useful arts. It was never the object of these laws to grant a monopoly for every trifling device, every shadow of a shade of an idea, which would naturally and spontaneously occur to any skilled mechanic or operator in the ordinary progress of manufactures."

The above citations are thought sufficient to make the Rule stated authoritative.

The problem for the Examiner, is, of course, to determine in a given case whether invention is present.

Each case has to be decided on its own merits. No writer or court has ventured to state the elements of the mental creative act referred to by Robinson, in the quotation given above; some have expressed the seeming impossibility of defining invention. In McClain *vs.* Ortmayer et al., C. D., 1891, page 532, the Supreme Court said:

> "The word 'invention' can not be defined in such a manner as to afford any substantial aid in determining whether a particular device involves an exercise of the inventive faculty or not."

Judge Dennison in his recent talk before the Examining Corps admitted the courts are still struggling with the

question of what constitutes invention. He gave a statement of one way of approaching the question which is: First determine exactly what the inventor aimed to do to advance the art, and, secondly, determine whether the alleged anticipating invention evidences an invention to advance along the same line. This will place the investigator in a position to separate out and weigh the character of the difference between the results obtained by each.

Neither have we, relative to "mechanical skill," a dogmatic statement as to what the "artisan," "headworkman," or "engineer," mentioned in the Supreme Court decision above, may be expected to produce. Definitions of "persons skilled in the art" are found in the decisions in Ex parte Kerr, C. D., 1884, page 27, and in The Tannage Patent Co. *vs.* Zahn, a circuit court decision printed in C. D., 1895, page 367; according to these decisions "persons skilled in the art," are those of ordinary and fair information relating to the subject matter of the invention. Of course, the section of the Statute, No. 4888, using this term, refers to the fullness and clearness of the description requisite to support a patent, such description being directed to "persons skilled in the art." But it is persons of this character who may be expected to, and do produce changes and improvements evidencing mechanical skill. A reasonable deduction must be that the skill and training of an engineer must be counted "ordinary" to his profession. A civil engineer, for instance, has large knowledge along certain lines, but so presumably have all civil engineers. A physician is wise in the matter of compounding prescriptions, but so, presumably, are all physicians. They are persons skilled in their particular arts. And if these persons make inventions which do not distinctly show originality, but merely a full professional knowledge availed of to produce results that might have been foreseen by persons equally learned and skilled, their work may properly be held to have evinced only mechanical skill.

But if a definition of exactly what constitutes invention be lacking, a number of decisions have been rendered in specific cases marking out, first, certain changes and even improvements that do not amount to invention;

and, secondly, indicating changes and improvements that have been decided to involve invention.

By a consideration of the first class of decisions certain "flats and shallows of mechanical skill," to continue the nautical metaphor mentioned above, are located and the possible bounds of the "channel of invention" somewhat defined.

Of the first class, the following decisions may be noted:

> "Mere skill of construction is not invention but only mechanical skill." Ex parte Snider, C. D., 1894, page 23.
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> "To make an apparatus portable is not a patentable improvement." Black Diamond Coal Mining Co. *vs.* Excelsior Coal Co., C. D., 1895, page 267 (U. S. Supreme Court).
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> "The right to improve upon prior devices by making solid castings in lieu of constructions of attached parts is so universal in the arts as to have become a common one." Consolidated Electric Manufacturing Co. *vs.* Holtzer, C. D., 1895, page 476 (Circuit Court of Appeals).
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> "Mere change of proportion is not sufficient to avoid a charge of infringement and is not therefore sufficient to establish difference of invention." Thomson-Houston Electric Co. *vs.* Western Electric Co., C. D., 1896, page 315 (Circuit Court of Appeals).
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> "There was no invention in providing a bearing surface upon the frame of a dash . . . either by an increase in the quantity of metal or otherwise, so as to strengthen the proper part in a proper way for its proper duty." Peters *vs.* Hanson, C. D., 1889, page 444 (U. S. Supreme Court).
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> "There is no patentable invention involved in swaging or striking up by means of a die, from a blank of iron or steel, a rail-brace of a form which had previously been made of cast metal." Strom Mfg. Co. *vs.* Weir Frog Co., C. D., 1896, page 618 (Circuit Court), and Kilbourne *vs.* W. Bingham Co., C. D., 1892, page 477 (Circuit Court of Appeals).
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> "The matter of elastic suspension by springs,

and of otherwise giving entire or partial independent support is so common in the arts that the presumption is against the patentability of any such mere form of suspension. The selection of a form of support is in the common field of mechanical construction." Thomson-Houston Electric Co. *vs.* Athol and Orange St. Railway Co., C. D., 1897, page 694 (Circuit Court).

"To increase or decrease the number of intermediate gear-wheels in the train of gearing of a timepiece from the number shown in the reference to accommodate the mechanism to the size of the case and still maintain the proper value between the rate of revolution of the minute and hour hands is within the skill of the mechanic familiar with the art and does not involve invention." Ex parte Volkmann and Truax, C. D., 1906, page 372. See, also, New Departure Bell Co. *vs.* Bevin Brothers Mfg. Co., C. D., 1896, page 428 (Circuit Court of Appeals).

"Where two mechanisms for performing successive operations upon a piece of work are both old in the art, the assemblying of these mechanisms upon a unitary support in such manner that the operator may transmit the work from one to the other without changing his position at the machine, *held* not to involve invention." Ex parte Smith, C. D., 1909, page 214.

"*Held* that ordinarily there is no invention involved in making in two pieces and separable things which have before been made in one piece of parts inseparably connected." Ex parte Thurston, C. D., 1905, page 294.

"Butt-welding of metal being old, claims for a metal pan formed of two parts, with the joining edges butt-welded, *held* not patentable over the prior art, as the substitution of a butt-weld for a crimped seam does not constitute invention." In re Hogan, 203 O. G., page 1558 (Court of Appeals, D. C.).

A statement made by Judge Putnam, of the Circuit Court, District of Massachusetts, in the case Dalby *vs.*

Lynes, C. D., 1895, page 381, deserves consideration, since it was afterwards quoted with approval by the Court of Appeals of the District of Columbia, in Fay *vs.* Duell, Commissioner of Patents, C. D., 1900, page 232. The statement is:

> "A novelty involving a state of art so universal and common as the making and adjustment of clothing must be of a radical character to overcome the presumption against its patentability."

As to rearrangement and reversal of parts without the accomplishment of a new result, the following decisions are pertinent:

> "The reversal of a tongue and its recess in the same kind of a structure, even if productive of an improved, but not a new, result does not require patentable invention." Sax *vs.* Taylor Iron Works, C. D., 1887, page 444 (Circuit Court).
>
> "Where certain parts of a water-tight shoe were old, a simple change in the form and arrangement of such parts subserving the same purpose as like parts of shoes constructed under earlier patents, and without causing any new function to be performed, does not constitute invention." Burt *vs.* Evory, C. D., 1890, page 245 (U. S. Supreme Court).
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> "In a water heating apparatus the arrangement of vertical pipes over instead of at the side of the fire does not constitute patentable novelty, and varying the length of these pipes so as to avoid interfering with the fuel space is an obvious change for an obvious purpose and does not amount to invention." Ex parte Garland, C. D., 1892, page 3.
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> "Wooden bearings in excelsior-machines being old, there is no patentability in a wooden bearing in such machine placed therein so that the grain of the wood will run vertically with the line of motion of the journal instead of at right angles thereto.
>
> "The use of lugs to prevent lateral movement

being well known, their employment in an excelsior-machine to prevent lateral movement of the sliding plate involves no invention." Johnson *vs.* Olsen, C. D., 1894, page 453 (Circuit Court).

"To make the handle of a knife for cutting hay reversible on the head of the shank to which the blade is attached, does not require anything more than ordinary mechanical ingenuity and does not involve invention." In re Iwan, C. D., 1901, page 344 (Court of Appeals, D. C.).

If, however, the rearrangement of parts involves a reorganization of the machine tending to simplification or an improved manner of operation, this may require and involve invention.

See, for instance, the following decisions: Wilcox and Gibbs Sewing Machine Co. *vs.* The Merrow Machine Co., C. D., 1898, page 584 (Circuit Court of Appeals), in which Judge Lacombe said in substance:

"Although the patentees have borrowed in part from the earlier art, they have so arranged the various parts as to tend towards simplicity, and have doubled speed of the overseam machine, and therefore the court is disposed to consider the changes in parts and arrangement of parts as showing meritorious invention."

Similar decisions are made in Morgan Engineering Co. *vs.* Alliance Machine Co., C. D., 1910, page 438 (Circuit Court of Appeals); Exparte Johnson, C. D., 1909, page 188.

It may be considered settled that a mere carrying forward or change in degree of an original idea is not invention; such cases frequently present a mere duplication of existing parts.

In Williams et al. *vs.* The Goodyear Metallic Rubber Shoe Co., C. D., 1892, page 288.

Judge Shipman said, speaking of the then recent Supreme Court decisions in Smith *vs.* Nichols and Burt *vs.* Evory:

"The tendency of these decisions is to confine patentability within narrower limits than for-

> merly. They especially demand that a device which is an improvement upon a pre-existing one must, in order to be patentable, contain a new idea, and perform some new function and not present changes of degree only, or simply 'new and more extended applications of the original thought.' "

Other decisions of the same character are: Busell Trimmer Co. *vs.* Stevens, C. D., 1890, p. 586 (U. S. Supreme Court); Consolidated Roller-Mill Co. *vs.* Walker C. D., 1891, page 310 (U. S. Supreme Court); Wright *vs.* Yuengling, C. D., 1894, page 560 (U. S. Supreme Court); In re Seabury, C. D., 1904, page 655 (Circuit Court of Appeals, D. C.).

The question sometimes arises in the Examiner's mind whether the practically simultaneous invention of the same thing by a number of inventors working independently does not of itself indicate the work to be that of a skilled mechanic. In Bromley Bros. Carpet Factory *vs.* Stewart, C. D., 1892, page 669, Judge Acheson said:

> "That upon the idea of making an improvement, an adaptation of an old machine to the new purpose was proposed almost simultaneously by three independent parties by an alteration of mechanism slightly different structurally, but the same in principle in each case, is evidence that such change was obvious and did not involve invention."
>
> See, also, North British Rubber Co. *vs.* Jandorf, C. D., 1898, page 313 (Circuit Court); and Computing Scale Co. *vs.* Automatic Scale Co., C. D., 1905, page 704 (Circuit Court of Appeals, D. C.).

As to the omission of mechanical parts, the rule seems well settled and appears to be—

> "A reconstruction of a machine so that a less number of parts will perform all the functions of the greater may be invention of a high order; but the omission of a part with a corresponding omission in function, so that the retained parts

> do just what they did before in the combination, can not be other than a mere matter of judgment, depending upon whether it is desirable to have the machine do all or less than it did before." McClain *vs.* Ortmayer, C. D., 1888, p. 231 (Circuit Court); See also National Hat Pouncing Machine Co. *vs.* Hedden, C. D., 1893, p. 294 (U. S. Supreme Court).

On the question of substitution of materials or parts, the rule clearly is that if the substituted material or part was well known and its advantages and virtues understood, and the new result attained by the substitution was due solely to the characteristics of the material or part substituted, the substitution displays no invention. Ex parte Krell, C. D., 1888, page 139; Ex parte Odenheimer, C. D., 1889, page 240; Ex parte Foss, C. D., 1891, pages 153 and 208; Ex parte Grayson and Crecelius, C. D., 1894, page 100.

However, if the substitution of a part results in overcoming particular difficulties and results in a particularly meritorious article or machine, the substitution may involve invention, according to the decision in Mast, Foos and Co. *vs.* Dempster Mill Mfg. Co., C. D., 1898, page 297 (Circuit Court of Appeals).

In the above series of decisions, I have tried to select those where the language used in each may be applicable to more than one particular set of circumstances; in other words, to select cases typical each of a class.

In taking up the second class of decisions, viz. those deciding invention to have been present and its requirements satisfied, it is noteworthy that the great majority of them decide only its particular case; in other words, that as to that particular craft, it is in the "navigable channel of invention."

Some cases have been said to be just within the bounds of the channel and a few have used language broad enough to help in defining the channel.

For instance—

> "Simplicity does not negative invention when a new and useful result is accomplished." Western

Mineral Wool Co. *vs.* Globe Mineral Wool Co., C. D., 1896, p. 622 (Circuit Court).

"Whenever in an art, machine, manufacture, or composition of matter a change, however apparently minute, is made which is not obvious and results in marked advantages, a patentable invention has been produced." Ex parte Champney, C. D., 1892, page 176.

"In determining the question of patentable novelty, there can be no hard and fast rule. Each case must be decided upon its own facts. Mere change of form in and of itself does not disclose novelty. A new article of commerce is not necessarily a new article patentable as such. But patentable novelty in a case like the present may be founded upon superior efficiency; upon superior durability including the ability to retain a permanent form when exposed to the atmosphere; upon a lesser tendency to breakage and loss; upon purity and, in connection with other things, upon comparative cheapness." Union Carbide Co. *vs.* American Carbide Co., C. D., 1910, p. 471 (Cir. Court of Appeals).

In this case, a chemical compound, calcium carbid, was under consideration.

It is not considered necessary in this paper to touch upon the feature of invention as embodied in a patentable combination or a patentable process, as these subjects have been treated *in extenso* in excellent papers already read before the Examining Corps.

One subject of importance, however, deserves our attention; it is that of double or analogous use.

It is fundamental that a patent covers a device in all the uses to which it may be applied; if a device be transferred from one art to another and the arts be analogous, no invention is involved in the transfer. That the new use was not contemplated by the patentee is immaterial. Aron *vs.* Manhattan Ry. Co., C. D., 1889, page 650 (U. S. Supreme Court); Howe Machine Co. *vs.* National Needle Co., C. D., 1890, page 281 (U. S. Supreme Court); Ansonia Brass and Copper Co. *vs.* Electric

Supply Co., C. D., 1892, page 313 (U. S. Supreme Court). But, as the court said in the last mentioned decision:

> "If an old device or process be put to a new use which is not analogous to the old one, and the adaptation of such process to the new use is of such a character as to require the exercise of inventive skill to produce it, such new use will not be denied the merit of patentability."

In this case and especially in the celebrated case, which was decided nearly three years later, viz.: Potts and Co. *vs.* Creager et al., C. D., 1895, page 143, the Supreme Court discusses at length the question of double use.

In the latter case, the validity of two patents each to C. and A. Potts for a clay disintegrator, was being investigated. The disintegrator was made up of a revolving cylinder with longitudinal cutting bars at spaced intervals on and projecting from its surface. Opposed to this cylinder was, in one patent, a swinging board moved in and out by an eccentric and in the other patent, a smooth revolving cylinder. The action of the machines was to cut or shred the clay.

Numerous alleged anticipating patents were cited from many arts showing grinding, crushing, cutting and rolling operations applied to many substances: an exhibit of the Creager wood-polishing machine was considered by the court, the nearest approach to anticipation; it had a cylinder with projecting strips or bars of glass, and of this the court said:

> "Had this machine been used for an analogous purpose, it would evidently have been an anticipation of the Potts' cylinder, since the substitution of steel for glass strips would not of itself have involved invention."

Concerning the patents cited as anticipations, the court repeatedly asked the questions: Will the machine disintegrate clay? Will it cut or shred like the Potts' machines?

The whole decision shows the great importance the court placed on the result obtained by revolving the knives in the new use.

The following much quoted conclusion was a part of this decision:

> "As a result of the authorities upon this subject, it may be said that, if the new use be so nearly analogous to the former one, that the applicability of the device to its new use would occur to a person of ordinary mechanical skill, it is only a case of double use, but if the relations between them be remote, and especially if the use of the old device produce a new result, it may at least involve an exercise of the inventive faculty. Much, however, must still depend upon the nature of the changes required to adapt the device to its new use."

Another Supreme Court decision emphasizing the importance of the object and function of a machine relative to the question of anticipation and therefore having a bearing on the question of originality or invention is Topliff *vs.* Topliff, C. D., 1892, page 402, wherein the court said:

> "It is not sufficient to constitute an anticipation that the device relied on might by modification, be made to accomplish the function performed by the patent in question, if it were not designed by its maker, nor adapted, nor actually used for the performance of such function."

Another prominent Supreme Court decision, pointing out the importance of a new and improved result is Webster Loom Co. *vs.* Higgins, C. D., 1882, page 285, wherein it was said:

> "A new combination of known devices producing a new and useful result (as that of greatly increasing the effectiveness of a machine), is evidence of invention."
>
> See, also, Miller *vs.* Lodge and Davis Machine Tool Co., 77 Federal Reporter, page 621 (Circuit Court of Appeals).

Two more points of importance remain to be considered.

When is weight to be given and how much importance is to be attributed to affidavits filed showing that a device has gone into extensive use by the public and superseded others of its kind?

The Circuit Court of Appeals for the Eighth Circuit, in its decision in Boss Manufacturing Co. *vs.* Thomas (C. D., 1911, page 456), said:

> "In doubtful cases, the fact that a patented article has gone into extensive or general use is evidence of its utility; but that is by no means conclusive of its patentability. When there is no invention, the extent of its use is a matter of no importance."

It is significant to note that the United States Supreme Court in most of its utterances on the subject says this sort of evidence can be availed of where the question of patentable *novelty* is in doubt.

For instance, in Potts *vs.* Creager, *supra*, the court said:

> "Where the question of novelty is in doubt, the fact that the device has gone into general use, and displaced other devices employed for a similar purpose, is sufficient to turn the scale in favor of the invention."
>
> See, also, McClain *vs.* Ortmayer, and Topliff *vs.* Topliff, *supra*.

Another decision which uses the term "invention" in place of "novelty," is Star Brass Works *vs.* Gen'l. Electric Co., 111 Federal Reporter, page 398 (Circuit Court of Appeals).

From the decisions, it seems fair to deduce that the Examiner should be careful not to give too much weight to this kind of evidence. In Ex parte Flomerfelt, C. D., 1896, page 59, Mr. Commissioner Seymour said:

> "Where the patentability of a device is not clear, extensive sales may resolve the doubt of patentability in favor of an applicant. This, however, is an unsafe criterion and must be cautiously applied."

That the fact of large sales is an unsafe criterion in determining the question of patentability was specifically stated by the Supreme Court in Duer *vs.* Corbin Cabinet Lock Co., C. D., 1893, page 334.

The last point I wish to touch upon is this: The Examiner is frequently urged to resolve all doubts in favor of the applicant. The case is usually very nearly "in extremis," when this argument is resorted to.

There appear to be certain circumstances where this argument is proper and should be given weight.

The Circuit Court of Appeals of the First Circuit, in Simonds Rolling-Machine Co. *vs.* Hathorn Manufacturing Co. (C. D., 1899, page 421), said:

> "On a question of anticipation if the identity of methods and results is doubtful, the doubt must be resolved in favor of the successful patentee who has in a practical way materially advanced the art."

From this it appears the Examiner may properly resolve all doubts in favor of the applicant, where, for instance, the disclosure of the invention in an alleged anticipating reference is incomplete or obscure, necessarily leaving the Examiner in doubt as to the identity of the reference with the invention claimed.

It does not follow that all doubtful cases involving the separation of invention from mechanical skill should be decided in favor of the applicant. It should be remembered that the burden of proof is upon the applicant to establish the patentability of the invention as claimed. Durham *vs.* Seymour, Commissioner of Patents, C. D., 1895, page 307.

In conclusion it may be said that the discussion above is thought sufficient to make clear that the presence of invention as an element of patentability is imperative; that the difficulty of distinguishing invention from mechanical skill is frequently great and demands careful thought; that the marked out "flats and shallows of mechanical skill" should be reviewed for purposes of comparison; that the object an inventor has in view is important; that the actual result he attains is even more so; that simplicity does not negative invention, and

that reorganization of parts with a view to simplification is likely to evidence invention of a high order.

If the above consideration of these or other features shall be useful to the Examiners in deciding the case entitled "INVENTION *vs.* MECHANICAL SKILL," the purpose of this paper will be fulfilled.

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